

## ABSTRACT

A hydrogen supply system is provided which can supply hydrogen easily to a hydrogen storing means, can generate a gas containing hydrogen at a low temperature and uses a hydrogen generating device which does not require a large quantity of electric energy.

In a hydrogen supply system comprising at least hydrogen supply means for supplying hydrogen to hydrogen storing means such as a hydrogen storage container loaded on a fuel cell automobile, for example, and a hydrogen generating device (10) for generating a gas containing hydrogen to be supplied to the hydrogen supply means, the hydrogen generating device is to generate the gas containing hydrogen by decomposing a fuel containing an organic compound, comprising a partition membrane (11), a fuel electrode (12) provided on one surface of the partition membrane, means (16) for supplying a fuel containing the organic compound and water to the fuel electrode, an oxidizing electrode (14) provided on the other surface of the partition membrane, means (17) for supplying an oxidizing agent to the oxidizing electrode, and means for generating and collecting the gas containing hydrogen from the fuel electrode. There are cases: (1) the hydrogen generating device is an open circuit having neither means for withdrawing electric energy to outside from a hydrogen generating cell constituting the hydrogen generating device, nor means for providing electric energy

from outside to the hydrogen generating cell; (2) the hydrogen generating device has means for withdrawing electric energy to outside with the fuel electrode serving as a negative electrode and the oxidizing electrode as a positive electrode; and (3) the hydrogen generating device has means for providing electric energy from outside with the fuel electrode serving as cathode and the oxidizing electrode as anode.